Fact Sheet

California Environmental Protection Agency
Air Resources Board

Commercial Harbor Craft Regulation

On November 15, 2007, the California Air Resources Board (ARB) approved a regulation to reduce emissions from diesel engines on commercial harbor craft vessels. The regulation is expected to significantly reduce diesel particulate matter (PM) and oxides of nitrogen (NOx) emissions from harbor craft engines.

What types of vessels are subject to this regulation?

The regulation applies to all commercial harbor craft vessels including, but not limited to, ferries, excursion vessels, tugboats, towboats, crew and supply vessels, work boats, pilot vessels, and commercial and charter fishing boats. There are about 4,200 harbor craft vessels, and 8,300 diesel engines on these vessels, currently in use in California. Of these, nearly 600 are ferries, excursion vessels, tugboats, and towboats equipped with about 1,900 propulsion and auxiliary engines that will be subject to in-use engine emission limits.

What does the commercial harbor craft regulation require?

Regulated California Waters means:

All internal waters, estuarine waters, ports, and coastal waters within 24 nautical miles of the California coast.

The regulation, effective January 1, 2009, includes requirements for both new and in-use diesel engines used on commercial harbor craft operating in Regulated California Waters including internal, estuarine, and coastal waters. Below is a brief discussion of these requirements; specific details can be found in the regulation, which is available online at http://www.arb.ca.gov/regact/2007/chc07/chc07.htm.

Operational Requirements for All Commercial Harbor Craft

Commercial harbor craft owner/operators will be required to keep records for each vessel and install (if not already installed) a non-resettable hour meter on each engine. All owner/operators will be required to submit an initial report to the ARB by February 28, 2009. Vessel owner/operators will need to keep a copy of their initial report and yearly records on the vessel or in a central dockside location to be made available upon request by ARB staff.

Newly Acquired Engines for New Harbor Craft and Replacement Engines on In-Use Harbor Craft

The engines on all new commercial harbor craft vessels will be required to meet the United States Environmental Protection Agency (U.S. EPA) marine engine emission standards (standards) in effect at the time the vessel is acquired. Newly acquired engines for all in-use harbor craft will be required to meet the Tier 2 or Tier 3 standards (or Tier 4 in certain cases) in effect at the time the vessel owner/operator acquires the engine. This provision ensures that as older engines on in-use vessels are retired, they will be replaced with the cleanest available engines.

Propulsion Engines for New Ferries

Propulsion engines on new ferries will be required to be even cleaner than the Tier 2 and Tier 3 standards. All new ferries acquired after January 1, 2009, with capacity for 75 or more passengers, will be required to install on the propulsion engines the best available control technology (BACT) in addition to having engines that meet the applicable Tier 2 or Tier 3 standards in effect at the time of acquisition. Alternatively, ferry vessels may comply with the regulation by installing propulsion engines that meet the Tier 4 standards.

In-Use Requirements Specific to Ferries, Excursion Vessels, Tugboats, and Towboats

The regulation requires existing Tier 1 and earlier auxiliary and propulsion engines on in-use ferries, excursion vessels, tugboats, towboats, and multipurpose harbor craft, to meet U.S. EPA Tier 2 or Tier 3 standards in effect at the time of regulation compliance. There are two regulation compliance schedules: one for vessels with their home ports outside of the South Coast Air Quality Management District (SCAQMD), and an accelerated schedule for vessels with their home ports in the SCAQMD. Both schedules are based on the engine model year and hours of operation and are designed to replace the oldest, highest use engines first. The vessel owner/operators are required to submit a report about how they plan to comply with these requirements and then an additional report when they have completed compliance.

Why did ARB develop a regulation for commercial harbor craft?

Regulations are necessary to reduce emissions of diesel PM and NOx that cause adverse health effects for Californians. Diesel engines on California commercial harbor craft emit an estimated 3.3 tons per day (tpd) of diesel PM and 73 tpd of NOx.

The ARB identified diesel PM as a toxic air contaminant (TAC) in 1998. Exposure to diesel PM may result in both cancer and non-cancer health effects. Non-cancer health effects may include eye and lung irritation, allergic reactions in the lungs, asthma exacerbation, blood toxicity, immune system dysfunction, and developmental disorders. NOx has been shown to have the following adverse health effects in humans: respiratory irritation, immune system suppression, and asthma exacerbation.

What are the health impacts associated with commercial harbor craft emissions?

The health impacts associated with commercial harbor craft emissions include both cancer and non-cancer health risks. A recent ARB exposure study at the ports of Los Angeles and Long Beach found harbor craft to be the third highest source of diesel PM emissions contributing to the cancer risk from port activity. The study found that over 1.5 million people were exposed to potential cancer risk levels of greater than 10 in a million. Non-cancer health impacts are due to both directly emitted PM and secondary diesel PM, to which NOx is a precursor. Staff estimates that the non-cancer health impacts from harbor craft emissions include approximately 90 premature deaths and 2,400 asthma-related cases per year, as well as numerous other impacts.

What are the environmental and health impacts of the regulation?

By 2025, harbor craft diesel PM emissions will be reduced about 75 percent and NOx emissions about 60 percent compared to the 2004 baseline. These reductions will result in a decrease of over 60 percent for the population impacted by a cancer risk of 10 in a million and avoid approximately 310 premature non-cancer deaths statewide by 2025, as well as prevent numerous other non-cancer health effects.

How much will the regulation cost?

The total cost of regulatory compliance for affected businesses is estimated to be approximately $140 million over the life of the regulation. The cost-effectiveness is estimated to be about $29 per pound of diesel PM reduced, if all costs are attributed to reducing diesel PM. If the costs are split evenly between reducing PM and NOx, the cost effectiveness is estimated at $14 per pound of PM and $1,800 per ton of NOx. Health cost savings due to reduced mortality and reduced incidences of non-cancer illnesses are estimated at a total valuation of $1.3 billion to $2 billion, calculated using U.S. EPA methodology.

Where can I find more information about the regulation?

The regulation, accompanying staff report, technical support document, and errata documents can be accessed on our website at http://www.arb.ca.gov/regact/2007/chc07/chc07.htm. If you have specific questions or comments about the regulation or supporting documents, please contact Todd Sterling at 916-445-1034 (e-mail: tsterlin@arb.ca.gov), Cherie Rainforth at 916-327-7213 (e-mail: crainfor@arb.ca.gov), or visit our web site at http://www.arb.ca.gov/harborcraft.

For additional general information:

Please contact ARB's diesel hotline at (866) 6DIESEL (634-3757). You may also obtain this document in an alternative format by contacting ARB at: (916) 322-4505 (voice); (916) 324-9531 (TDD, Sacramento area only); (800) 700-8326 (TDD, outside Sacramento). TTY/TDD/Speech-to-Speech users may dial 711 for the California Relay Service.